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TECHNICAL RESEARCH NOTE 125

Correlates of Disciplinary Record in a Wide—Range Sample

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(An Activity of the Chief of Research and Development)

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Technical Research Note 125

CORRELATES OF DISCIPLINARY RECORD IN A WIDE-RANGE SAMPLE

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PREFACE

The present publication reports on a portion of Subtask a, "Analysis of Background and Behavior Factors Related to Retention in the Army", of the RETENTION STANDARDS Task, FY 1961 Work Program, research which was completed under the ATTRITION REDUCTION Task, FY 1962 Work Program. The research within these tasks is responsive to special requirements of the Deputy Chief of Staff for Personnel, and furthers the U. S. Army Military Personnel Management objective of developing and making available for operational use research products to optimize the selection, classification, management, and utilization of Army personnel.

Retention Standards research has focussed upon the early identification of soldiers who meet current induction standards but whose cumulative record of performance in the Army would prove unacceptable. Its ultimate goal is to develop special measures to identify, prior to selection or during basic training, personnel whose behavior in the Army is likely to warrant disciplinary action.

BRIEF

CORRELATES OF DISCIPLINARY RECORD IN A WIDE-RANGE SAMPLE

Requirement:

Means of identifying potentially delinquent soldiers are being developed on current Army input--restricted, in effect, to the upper three AFQT mental categories. Would such means be effective also in a mobilization input that included men in AFQT categories IV and V?

Procedure:

Operational test scores and data on type of discharge and count-martial conviction were obtained on a sample of 875 enlisted men who entered the Army in 1952-53 when AFQT IV and V men were being accepted. High and low AFQT categories were compared with respect to disciplinary action and predictors were evaluated in the broad-based sample.

Results:

AFQT IV and V categories showed significantly greater proportions of men incurring disciplinary action than did AFQT category III and above. Years of education, the verbal test of the Army Classification Battery, and AFQT were consistently related to the disciplinary criterion in a sample in which all mental categories were represented. Pre-service criminal record was also related to disciplinary action.

Utilization of Findings:

In view of criterion differences established between a broad-based (mobilization) sample and a restricted (current input) sample, age at entry or score on a specially developed predictor could be considered as additional qualifying factors for use with applicants or registrants in AFQT IV and V categories.

CORRELATES OF DISCIPLINARY RECORD IN A WIDE-RANGE SAMPLE

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CORRELATES OF DISCIPLINARY RECORD IN A WIDE-RANGE SAMPLE

PURPOSE

The objective of the RETENTION STANDARDS Task is to develop techniques for the early identification of individuals whose behavior is likely to prove unacceptable to the Army. The criterion of military delinquency adopted is based on type of discharge and court-martial record. Since the inception of the Task in FY 1958, samples of enlisted men available for the evaluation of experimental measures have been limited to those scoring in the upper three of five mental ability categories as measured by the Armed Forces Qualification Test (AFQT scores of 30 or above). Based on obtained estimates of relationship between general mental ability and military delinquency, the criterion range within available samples is estimated to be somewhat narrower than it would be under less rigorous selection standards. Examination of criterion parameters in a more broadly based sample was necessary to the development of predictors which could be expected to be effective under varying mobilization conditions.

The following specific objectives governed the design of the present study:

1. To find out how a sample drawn from the full range of mental ability would compare, in incidence of military delinquency, with a more restricted current input sample.

2. To evaluate operational tests of the Army Classification Battery, AFQT score, and items of personal background as predictors of military delinquency in a broadly based sample.

METHOD

Samples

Basic data were obtained during the period from November 1952 through October 1953, when operational test scores of a random sample of Army enlisted input were obtained at all Army Reception Centers. For the present analysis, 1070 cases were randomly selected from the sample, that is, two for every 1000 men entering the Army during the period of data collection. The sample was narrowed down to 875 cases which met research requirements. All men included in the study were first-term enlisted men (RA and US) whose records contained the desired scores on all predictor variables and criterion data. Individuals who enlisted before November 1952 and any who reenlisted before one full term of service had expired were excluded.

Selective Service inductees (US) and voluntary enlistees (RA) were studied separately. Each sample was divided into two subsamples:

Sample A. Total inductee sample, US (N = 769)

A_1 Inductees, AFQT categories I - III (N = 512)

A_2 Inductees, AFQT categories IV and V (N = 257)

Sample B. Total enlistee sample (RA) (N = 106)

B_1 Enlistees, AFQT categories I - III (N = 83)

B_2 Enlistees, AFQT categories IV and V (N = 23)

Criterion Variables

Acceptability. A combined criterion consisting of type of discharge and court-martial conviction was used as a basis for comparing acceptability in the several samples. The group was divided into three categories:

1. Honorable discharge with no court-martial convictions

2. Honorable discharge with one or more court-martial convictions

3. Other-than-honorable discharge

For computation of validity coefficients, the discharge variable was dichotomized into category 1 above vs category 2 and 3 combined, thus separating each subsample into a favorable and a generally unfavorable category.

Predictor Variables

AFQT percentile score

ACB test scores:

Reading and vocabulary (RV)
Arithmetic Reasoning (AR)
Pattern Analysis (PA)
Mechanical Aptitude (MA)
Army Clerical Speed (ACS)
Army Radio Code (ARC)
Shop Mechanics (SM)
Automotive Information (AI)
Electrical Information (EI)
Radio Information (RI)

Education (years of civilian education before entry)

Pre-service criminal convictions (as indicated in Enlistment Record, DD Form 4, for RA, or Record of Induction, DD Form 47, for US. Variable was dichotomized as 0 = no convictions; 1 = one or more).

Pre-service medical complaints (number of psychosomatic type physical complaints and illnesses prior to current military service as indicated by Report of Medical History, SF Form 89).

Statistical Operations

Within each sample and subsample, number and percentage of men falling into each of the three acceptability categories were computed. Samples were compared with respect to these percentages, and the differences were tested for significance (Table 1).

For the total inductee sample, means and standard deviations of test scores and other predictor measures were computed. Biserial validity coefficients were computed for all predictors, using the dichotomized discharge measure as criterion.

Again using the broad-based US sample, intercorrelations among all predictors were computed. Composite validity coefficients were obtained, using a square-root test selection procedure and the Wherry shrunken multiple formula.

RESULTS

Acceptability--Broad-Based vs Restricted Input Sample

Table 1 shows the number and percent of cases in each sample and subsample by criterion category. Critical ratios for selected differences in proportions are presented. Considering the total US sample, about 7 percent had received other-than-honorable discharge and/or court-martial conviction. Although men in AFQT categories IV and V comprised 33 percent of the sample, they accounted for 59 percent of the cases in the unfavorable criterion category--30 out of 51 cases.

In the RA sample, the 22 percent in the AFQT IV and V subsample accounted for 57 percent of the unfavorable criterion category. Thus, the AFQT-criterion relationship was even more marked in the RA sample than among inductees. Because of the small number of RA enlisted men, however, analysis of RA data was limited to comparisons of incidence of disciplinary action within subsamples.

Table 1

NUMBERS AND PERCENTAGES OF EM IN THREE CRITERION CATEGORIES FOR BROAD-BASED AND RESTRICTED SAMPLES

Sample	Honorable Discharge, No Courts-Martial		Honorable Discharge, with Courts-Martial		Other-than-Hon. Discharge	
	N	%	N	%	N	%
A ALL US	718	93.4	31	4.0	20	2.6
A_1 US AFQT Cat. I-III	491	95.9	15	2.9	6	1.2
A_2 US AFQT Cat. IV or below	227	88.3	16	6.2	14	5.4
B ALL RA	83	78.3	12	11.3	11	10.4
B_1 RA AFQT Cat. I-III	73	88.0	8	10.0	2	2.0
B_2 RA AFQT Cat. IV or below	10	43.5	4	17.4	9	39.1
Critical Ratios						
A vs B	4.96*		3.09*		3.79*	
A_1 vs B_1	2.76*		22.63*			
A_2 vs B_2	7.65*					
A_1 vs A_2	4.00*		2.20		3.35*	
B_1 vs B_2	4.45*					

*Significant at the .01 level of confidence.

Prediction of Disciplinary Action in the Broad-Based Sample

Validity coefficients, means, and standard deviations for the total US sample are shown in Table 2. The best four-test predictor composite resulting from the test selection procedure is shown in Table 3. Table 4 shows predictor intercorrelations in the same sample. The Reading and Vocabulary Test of the Army Classification Battery, being the most consistent predictor across samples, was used as the base variable.

A three-test composite of Reading and Vocabulary, pre-service criminal convictions, and education yielded a multiple correlation coefficient of .46. The four-test composite, which included the Electrical Information Test of the ACB, yielded an R of .48. Pre-service criminal convictions, while its validity was somewhat lower than that of the other variables selected, showed a greater degree of independence than the other predictors (Table 4).

Table 2

MEANS, SD's, AND COEFFICIENTS OF CORRELATION BETWEEN FOURTEEN PREDICTOR VARIABLES AND THE TYPE OF DISCHARGE CRITERION FOR BROAD-BASED SAMPLE

	Variable[a]	Sample A--US (AFQT Cat. I - V) M	S.D.	r
1.	AFQT	48.98	28.00	.28
2.	Reading and Vocabulary	101.62	22.54	.37
3.	Arithmetic Reasoning	97.27	22.27	.32
4.	Pattern Analysis	100.83	24.12	.27
5.	Mechanical Aptitude	103.69	19.92	.28
6.	Army Clerical Speed	90.44	20.20	.31
7.	Army Radio Code	96.27	18.95	.20
8.	Shop Mechanics	102.73	20.77	.32
9.	Automotive Information	100.72	19.88	.19
10.	Electrical Information	102.72	18.70	.30
11.	Radio Information	99.24	17.25	.13
12.	Education	11.28	2.53	.37
13.	Pre-service Criminal Conviction[b]	.033	.190	.25
14.	Pre-service Medical Complaints	3.45	3.77	.06

[a]Variables 2-11 are ACB test scores.

[b]Pre-service criminal conviction was coded 0 = no convictions; 1 = 1 or more. Correlations for this variable with the dichotomized criterion are bis. Phi's. All other correlations are r_{bis}.

Table 3

SELECTED FOUR-TEST COMPOSITE PREDICTOR FOR BROAD-BASED US SAMPLE[a]

	Sample A_1--US (AFQT Cat. I - V)			
Variable	r	R	$\bar{R}$	B
Reading and Vocabulary	.37	.37	.37	.1515
Pre-service Criminal Convictions	.25	.43	.43	.2422
Education	.37	.47	.46	.1954
Electrical Information	.30	.48	.48	.1514

[a]Square-root test selection technique with Wherry shrunken multiple formula applied after each test was selected. ($\bar{R}$)

Table 4

COEFFICIENTS OF INTERCORRELATION AMONG 14 PREDICTORS IN BROAD-BASED US SAMPLE

Variable[a]	Intercorrelations													
1. AFQT Score	1													
2. Reading and Vocabulary	.74	2												
3. Arithmetic Reasoning	.83	.75	3											
4. Pattern Analysis	.79	.66	.73	4										
5. Mechanical Aptitude	.72	.63	.67	.69	5									
6. Army Clerical Speed	.65	.66	.70	.59	.56	6								
7. Army Radio Code	.46	.46	.48	.42	.39	.46	7							
8. Shop Mechanics	.72	.64	.67	.68	.76	.55	.36	8						
9. Automotive Information	.53	.39	.44	.49	.63	.34	.17	.69	9					
10. Electrical Information	.57	.51	.54	.53	.56	.41	.34	.60	.52	10				
11. Radio Information	.39	.32	.36	.38	.39	.24	.28	.37	.31	.51	11			
12. Education	.60	.65	.66	.55	.53	.60	.41	.50	.24	.44	.28	12		
13. Pre-service Criminal Conviction	-.05	-.06	-.04	-.02	-.01	-.04	-.05	-.05	-.03	-.06	.00	-.04	13	
14. Pre-service Medical Complaints	.12	.11	.13	.14	.13	.10	.09	.10	.10	.10	.07	.09	.04	14

[a]Variables 2-11 are ACB test scores.

FINDINGS AND CONCLUSIONS

In the US sample, and again in the smaller RA sample, enlisted men in AFQT mental category III or higher showed significantly lower percentages of individuals incurring disciplinary action than did enlisted men in AFQT mental categories IV and V. This finding is consistent with findings in an earlier study (Klieger, Dubuisson, and deJung, 1961) in which low-mental-level individuals accounted for a much larger percentage of unfavorable discharges and/or court-martial convictions than did a "normal" group.

Criterion differences were thus established between a broad-based sample typical in mental ability of a mobilization population, on the one hand, and a sample of current input restricted to the upper three AFQT categories, on the other.

Education, the verbal test of the ACB, and AFQT showed consistent relationship to the criterion of disciplinary action. Pre-service criminal record was also found to be related to the disciplinary criterion.

The findings suggest the possibility that some kind of separate entry qualification hurdle might be established for low-level applicants or registrants. Age at entry, found to be moderately predictive of the acceptability criterion (Klieger, Dubuisson, and deJung, 1961), could also be considered as a qualification factor.

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U. S. Army Personnel Research Office, OCRD, DA
CORRELATES OF DISCIPLINARY RECORD IN A WIDE-RANGE SAMPLE by Walter A. Klieger, Adrian U. Dubuisson and Bryan B. Sargent III. August 1962. Rept on Retention Standards b-13 Proj.--15 p. incl. tables, 6 Ref. (USAPRO Technical Research Note 125). (DA Project OJ95-60-001) Unclassified Report

In the development of techniques for the early identification of potentially delinquent soldiers, operational test scores and data on type of discharge and court-martial conviction were obtained on a sample of 875 enlisted men who entered the Army in 1952-53 when AFQT Category IV and V men were being accepted. For purposes of the study, the US (Selective Service inductees) sample (N = 769) and the smaller RA (voluntary enlistees) sample (N = 106) were each divided into two subsamples--AFQT Category I - III and AFQT Category IV and V. AFQT IV and V categories showed significantly greater proportions of men incurring disciplinary action than did AFQT Category III and above. Years of education, the verbal test of the Army Classification Battery, and AFQT were consistently related to the disciplinary criterion in a sample in which all mental categories were represented. Pre-service criminal record was also found to be related to disciplinary action.

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